AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

<u>Listing of Claims:</u>

1. (Currently Amended) A method for ~~using~~ reducing power consumption of a three-dimensional (3D) photonic quantum ring (PQR) laser used as a low power consumption display, comprising the step of:

adjusting ~~a radius of the PQR laser to increase~~ an inter-mode spacing (IMS) of oscillation modes discretely oscillating at multiple wavelengths in a wavelength range within a gain profile of a given semiconductor material of the PQR laser by adjusting a radius of the PQR laser to increase said inter-mode spacing, thereby reducing a power consumption of the PQR laser.

2. (Previously Presented) The method of claim 1, wherein increasing the IMS causes the number of the oscillation modes oscillating in the envelope to be decreased.

3. (Previously Presented) The method of claim 2, wherein the radius of the PQR laser is in a range of 15μm to 2μm depending on the structure and shape of the PQR laser and the semiconductor material.

4. (Previously Presented) The method of claim 1, wherein the radius of the PQR laser is about 3μm.

5. (Previously Presented) The method of claim 3, wherein the number of the oscillation modes of the PQR laser has a value of 1.

6. (Previously Presented) The method of claim 4, wherein the number of the oscillation modes of the PQR laser has a value of 1.

7. (Canceled)

8. (Canceled)

9. (Currently Amended) A method for ~~using~~ reducing power consumption of a three-dimensional (3D) photonic quantum ring (PQR) laser used as a low power consumption display, comprising the step of:

adjusting ~~a radius of the PQR laser to decrease~~ the number of oscillation modes discretely oscillating at multiple wavelengths in a wavelength range within a gain profile of a given semiconductor material of the PQR laser by adjusting a radius of the laser to decrease said number of oscillation modes, thereby reducing a power consuming of the PQR laser, wherein the number of the oscillation modes has a value of 1.

10. (Previously Presented) The method of claim 9, wherein the radius of the PQR laser is in a range of 15μm to 2μm depending on the structure and shape of the PQR laser and the semiconductor material.

11. (Previously Presented) The method of claim 9, wherein the radius of the PQR laser is about 3μm.

12. (Canceled)

13. (Canceled)